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Multi-channel capillaries and photonic crystal fibres for separation sciences

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Keywords: photonic crystal fibres, multi-channel capillary, modification, polymer, Raman, SERS, separations.

Highlights:

- Synopsis of applications of PCFs
- Summary of modification reactions performed on PCFs
- Discussion of the potential of PCFs in separation sciences
- Role of PCF type and geometry for analytical sciences discussed

List of abbreviations: ACN acetonitrile, APTES (3-aminopropyl) triethoxysilane, CE capillary electrophoresis, COC cyclic olefin copolymer, CNT carbon nanotube, α -CRP C reactive protein, CTMS chlorotrimethylsilane, DVB divinyl benzene, EDC 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide.HCl, EDMA ethyleneglycol dimethacrylate, EGFR Epidermal Growth Factor Receptor, GC gas chromatography, γ -maps 3-(trimethoxysilyl) propyl methacrylate, HCl hydrochloric acid, HC-PCF hollow core PCF, HRP horseradish peroxidase, LC liquid chromatography, MLC multi-lumen capillary, MCF multi-channelled fibre, MOF multi-structured optical fibre, M_r molecular weight, MS mass spectrometry, MSW microstructured waveguide, NHS N-hydroxysuccinimide, PAH polycyclic aromatic hydrocarbon, PCR polymerase chain reaction, PMMA poly(methyl methacrylic acid), PDMS poly(dimethoxysilane), PCF photonic crystal fibre, PLOT porous layer open tubular, PSDVB poly(styrene-co-divinyl benzene), PBS phosphate buffered saline, SC-PCF solid core PCF, SERS surface enhanced Raman spectroscopy, SPR Surface plasmon resonance.

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